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REMARKS

Applicants acknowledge that the Office Action dated November 13, 2003 has been made final. Nevertheless, for the reasons set forth hereinafter, Applicants respectfully request that the finality of the outstanding Office Action be withdrawn, that the foregoing amendment be entered, and that this application be further considered in light of the revisions set forth above, and the comments set forth below.

In the current Office Action, Claim 7, which was previously rejected under 35 U.S.C. §102(e) as anticipated by Wheeler (U.S. Patent No. 6,277,509) has been rejected under 35 U.S.C. §103(a) over the newly cited Yamada reference (U.S. Patent No. 5,482,790) in view of Wheeler. Paragraph 7 of the Office Action states that the previous amendment warranted this new ground of rejection. However, Applicants respectfully submit that the revisions to Claim 7 made in the August 12, 2003 amendment did not necessitate the citation of the Yamada et al reference.

In particular, Applicants note that two changes were made in Claim 7. First, the last two paragraphs were deleted, and incorporated into the body of new dependent Claim 12, and second, the words "from said exhaust gas stream" were inserted in the first paragraph of the body of Claim 7. With regard to the former change, the Yamada et al reference has been cited as disclosing a method

of operating a fuel cell system in which power is supplied from batteries when the temperature of the fuel cell is below a preset value and the fuel cell itself supplies power when its temperature is above the preset value. It is apparent that the cancellation of the last two paragraphs in Claim 7, and the addition of new Claim 12 incorporating the same limitations verbatim did not necessitate the citation of the Yamada et al reference for this purpose. Moreover, the words "from said exhaust gas stream" were inserted into the first paragraph of the body of Claim 7 only to state expressly that which a person skilled in the art would recognize as being implicit in Claim 7, namely that the exhaust gas stream is cooled by the transfer of heat from the exhaust gas stream to the cooling circuit. (See, in this regard, Claim 8.) More importantly, however, the Yamada et al reference contains no disclosure which addresses this feature of the invention in a manner which differs in any way from that of the previously cited Wheeler reference. Accordingly, Applicants respectfully submit that the latter change did not necessitate the citation of Yamada et al, and that the final rejection of Claim 7 as obvious over Yamada et al in view of Wheeler should not have been made final. It is therefore requested that the finality of the outstanding Office Action be withdrawn and the foregoing amendment entered, as noted previously.

Claims 1-6, 9-11 and 13 have been rejected under 35 U.S.C. §102(e) as anticipated by Wheeler (U.S. Patent No. 6,277,509), while Claims 7, 8 and 12 have been rejected under 35 U.S.C. §103(a) as unpatentable over Yamada et al

(U.S. Patent No. 5,482,790) in view of Wheeler. For the reasons set forth hereinafter, Applicants respectfully submit that Claims 1-13 distinguish over the cited references, whether considered separately or in combination.

The Wheeler reference is described in detail in Applicants' Remarks which accompanied the August 12, 2003 amendment. As noted there, the fuel cell system in Wheeler includes its own heat exchanger circuit which has a hydride bed cooler for cooling the exhaust gas streams from the cathode and anode chambers of the fuel cell. It does not, however, disclose a water recovery system for an electrical/fuel cell system in a vehicle having an engine and a cooling circuit including a vehicle radiator for cooling the engine, in which "one of said cooling circuit for cooling said engine and a cooling circuit of a vehicle air conditioning system is coupled via a heat exchanger to at least one exhaust-gas stream of the electrical/fuel-cell system," as recited in Claim 1. (Claims 7, 9, 12 and 13 are limited in a substantively similar manner.) As noted in the comments which accompanied the amendment submitted August 12, 2003, the advantage of this arrangement is that the cooling circuits for the engine (including the vehicle radiator) and the air conditioning system have an extremely high capacity to absorb heat, and therefore are able to cool the exhaust gas stream from the fuel cell to a very low temperature, such as is necessary to condense efficiently the water contained therein.

Paragraph 6 of the Office Action notes that the Wheeler reference discloses at Column 7, lines 18-21 that the heat exchanger 52 (Figure 1) can be a vehicle radiator. Applicants note in this regard, however, that neither the cited portion of the Wheeler reference, nor any other portion of the disclosure insofar as Applicants can determine, suggests the use of the engine cooling circuit or the air conditioning cooling circuit to transfer heat away from the fuel cell as recited in Claim 1. In order to clarify this point, Claim 1 has been amended to make explicit the feature that the “vehicle radiator” is part of the cooling circuit for cooling the vehicle engine. While the Wheeler reference states at Column 7, lines 18-22 that the coolant heat exchanger 52 may be a “standard ambient air cooled radiator, such as is common in the automotive industry”, this language does not suggest that the cooling circuit for the vehicle engine or the air conditioning cooling circuit be coupled to the fuel cell system cooling circuit. Rather, it merely states the type of heat exchanger (ambient air cooled) which is suitable, and notes that the use of such heat exchangers is common in vehicles. Accordingly, Applicants respectfully submit that Claims 1, 7, 12 and 13 distinguish over the Wheeler reference.

As noted previously, the Yamada et al reference has been cited as disclosing a fuel cell cooling water recovery system in which power is supplied to the load by batteries when the temperature of the fuel cell is below a preset value and the fuel cell itself supplies power when its temperature is above the

preset value, as recited in Column 10, lines 54-60. However, like Wheeler, nothing in Yamada et al teaches or suggests thermally coupling the water recovery circuit for an electrical/fuel cell system to either the cooling circuit for the engine or the cooling circuit for the vehicle air conditioner, as recited in each of the independent claims in this application. Accordingly, Applicants respectfully submit that all such claims distinguish over both Wheeler and Yamada et al.


Applicants note that Claim 12 in particular recites an operating method in which the fuel cell is operated (and supplies power to a load) when a temperature in the cooling circuit is below a preset value, and power is supplied from the battery (electric energy accumulator) when the temperature in the cooling circuit exceeds the preset value. The purpose of this system is to avoid operation of the fuel cell under operating circumstances in which the temperature of the cooling circuit (for the engine or the air conditioner) becomes so high that it is incapable of absorbing excess heat generated by the fuel cell, as described in paragraphs [0014] and [0015] of the disclosure. The invention in Claim 12 is thus the opposite of the Yamada et al reference, in which electric power is initially provided by a battery until the fuel cell reaches a proper operating temperature. That is, power is supplied from the battery when the temperature of the fuel cell, is below a preset value, and the fuel cell is started and operated to supply power to a load only after its temperature is above the preset value. The Yamada et al

reference uses a different temperature measurement, and uses it in a manner that is opposite that of the invention. Therefore, Applicants respectfully submit that Claim 12 distinguishes over the cited references, for this additional reason as well.

In light of the foregoing remarks, this application should be in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #225/49631).

Respectfully submitted,



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